

## ABSTRACT

Novel compositions are described for use in nitrate removal and treatment of water such as water and wastewater streams produced by processes in mining operations, agriculture industries operations, industrial operations, military operations, etc. These novel compositions are also useful for the treatment of water and wastewater streams associated with the running of industries and with the production and maintenance of livestock. Advantages of these novel compositions include use of them without need for pH adjustment and/or the presence of electropositive metals, inorganic acid, or alkaline compounds. One embodiment of these novel compositions comprises: (1) a sufficient amount of organic modified clay, (2) a highly crosslinked carbohydrate polymer with branched-chain structure containing sulfide and/or disulfide groups, or an alloy or blend of such a polymer with triazine-trithione sodium salt, (3) high swelling sodium bentonite or calcium bentonite, and (4) activated carbon.